(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
28 April 2005 (28.04.2005)

PCT

(10) International Publication Number
WO 2005/038391 A1

(51) International Patent Classification[7]: G01B 7/06, H01L 21/304

(21) International Application Number: PCT/JP2004/015753

(22) International Filing Date: 18 October 2004 (18.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003-359938 20 October 2003 (20.10.2003) JP

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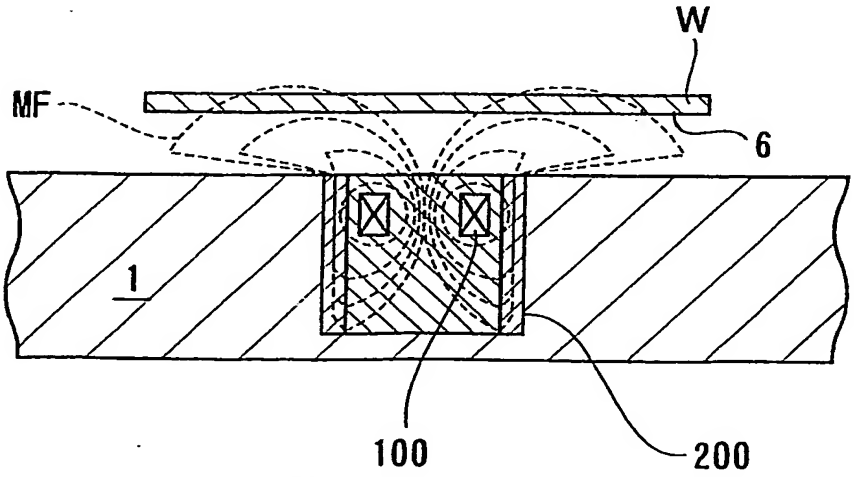
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: EDDY CURRENT SENSOR



(57) Abstract: An eddy current sensor (10) has a sensor coil (100) disposed near a conductive film (6) formed on a semiconductor wafer (W) and a signal source (124) configured to supply an AC signal to the sensor coil (100) to produce an eddy current in the conductive film (6). The eddy current sensor (10) includes a detection circuit operable to detect the eddy current produced in the conductive film (6). The detection circuit is connected to the sensor coil (100). The eddy current sensor (10) also includes a housing (200) made of a material having a high magnetic permeability. The housing (200) accommodates the sensor coil (100) therein. The housing (200) is configured so that the sensor coil (100) forms a path of a magnetic flux (MF) so as to effectively produce an eddy current in the conductive film (6).

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